

U.S. Patent Application Serial No. 09/817,365
Response dated April 26, 2004
Reply to OA of November 4, 2003

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (Currently Amended): A seal assembly comprising:
a pair of seal rings (1) and (1) individually comprising lip portions (23) and (23) disposed such that each of said lip portions (23) and (23) protrudes in an axial direction opposing the protruding direction of the other lip portion;
a load seal ring (2) compressed and inserted between said seal rings (1) and (1), said load seal ring (2) exerting reaction forces on said lip portions (23) and (23) outwardly in the axial direction, and said load seal ring (2) having an inner peripheral surface (30) having an axial-direction length less than that of an outer peripheral surface (26); and
an inner-diameter controller body (33), in contact with said load seal ring, for controlling the displacement of said load seal ring (2) in a periphery inner direction.
2. (Original): The seal assembly as defined in claim 1, further comprising an outer-diameter controller body (32) for controlling the displacement of said load seal ring (2) in a periphery outer direction.

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3. (Cancelled)

4. (Allowed): A seal assembly comprising:

a pair of seal rings (1) and (1) which is individually comprised of lip portions (23) and (23) disposed such that each of said lip portions (23) and (23) protrudes in a direction opposing an axial direction; and

a load seal ring (2) compressed and inserted between said seal rings (1) and (1), said load seal ring (2) exerting reaction forces on said lip portions (23) and (23) outwardly in the axial direction, wherein

one of the said seal rings (1) and (1) comprises said outer-diameter controller body (32) for controlling the displacement of said load seal ring (2) in the periphery outer direction, and the other one of said seal rings (1) and (1) comprises said inner-diameter controller body (32) for controlling the displacement of said load ring (2) in the periphery inner direction.

5. (Currently Amended): The seal assembly as defined in ~~one of claims 1, 2, and Claim 4~~, wherein said load seal ring (2) comprises a circumferential groove (27) that tolerates axial-direction compression.

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6. (Currently Amended): The seal assembly as defined in ~~one of claims 1, 2, and Claim~~ 4, wherein a cross section of said assembly is symmetric with respect to a radial-direction line passing the center thereof.

7. (Currently Amended): [[The]] A crawler-track connection structure comprising:
a pin (8) to be inserted through superposed end portions of links (5) and (5); and
a seal assembly (S) externally fitted on said pin (8) for preventing overflow of a lubricant to the outside, the lubricant being supplied to an outer peripheral side of said pin (8), wherein
one of said links (5) and (5) is immobilized on said pin (8);
the other one of said links (5) and (5) is supported on said pin (8) to be rotatable thereon; and
said seal assembly comprises
a load seal ring (2) disposed between radial-direction walls (W) and (W) opposing each other along an axial direction and having an axial-direction length at an inner-peripheral side less than a distance between said radial direction walls,
a first seal ring (1) comprising a lip portion (23) press-engaged with one of said radial-direction walls (W) and (W) according to a pressure exerted from said load seal ring (2), and
a second seal ring (1) comprising a lip portion (23) press-engaged with the other one of said radial-direction walls (W) and (W) according to a pressure exerted from said load seal ring (2).

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8. (Original): The crawler-track connection structure as defined in claim 7, further comprising a bushing (12) immobilized in the other one of said links (5) and (5) to be rotatable on said pin (8), and an end surface of said bushing (12) functions as the one of said radial-direction walls (W) and (W).

9. (Original): The crawler-track connection structure as defined in claim 7, further comprising:

a bushing (12) immobilized in the other one of said links (5) and (5) to be rotatable on said pin (8); and

a bushing (13) on the side of a sprocket (18), wherein said seal assembly (S) is inserted between said bushing (12) and said bushing (13).

10. (Original): The crawler-track connection structure as defined in one of claims 7 to 9, further comprising a ring body (31) disposed in an inner-diameter side of said load seal ring (2) for controlling the displacement of said load seal ring (2) in a periphery inner direction.

11. (Original): The crawler-track connection structure as defined in one of claims 7 to 9, further comprising a dust seal ring (37) disposed in an outer peripheral side of said seal assembly (S).

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12. (New): The seal assembly as defined in one of claims 1 and 2, wherein said load seal ring (2) comprises a circumferential groove (27) that tolerates axial-direction compression.

13. (New): The seal assembly as defined in one of claims 1, and 2, wherein a cross section of said assembly is symmetric with respect to a radial-direction line passing the center thereof.